

Light and Lighting

Official Journal
of the
Illuminating
Engineering
Society.

Incorporating
"The
Illuminating
Engineer."

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There is a Tide ...

THE Illuminating Engineering Society was formed in London 35 years ago. The illuminating engineering movement in this country may be said to have originated then.

Note that, from the commencement, it was regarded as a *movement*—not merely a means to enable scientists to meet occasionally and discuss technical problems. Almost the first paragraph in the Society's Memorandum and Articles of Association speaks of "the dissemination of knowledge" as one of its chief aims.

So the Society has sought to mould public opinion and to raise the status of lighting in the public esteem. The vista of progress portrayed in Mr. Stroud's recent Presidential Address (see p. 157) reveals its steady and striking advance to a position of authority and influence.

This progress should continue. But "there is a tide in the affairs of men" The Society must either advance or go back—expand or dwindle. It cannot stand still.



Yesterday, To-day, and To-morrow

This might well have been the title of Mr. E. Stroud's address at the opening I.E.S. meeting on October 10. There was a large and appreciative audience which, one observed, contained no fewer than ten past presidents, as well as many other leading members, some associated with the Society from very early days onwards. The subject matter was appropriate for the present year, when the Society appears to be on the eve of new developments and is making great plans for the future. The address (see p. 157) envisaged three distinct periods, the initial years when the Society was finding its feet, a subsequent "period of development" up to the present moment, and the era on which we are now entering when, it is hoped, the Society will finally come into its own. It is a long time since any such survey of the past has been attempted, and Mr. Stroud's review should be of special interest to the newer I.E.S. members. The phenomenal growth in membership—which during the five years from 1934 almost doubled itself, and again almost doubled in the subsequent five years to date—gives good hope for the future, when the Society hopes not only to advance the status of its members but to prove of still greater service to the community.

I.E.S. Proposed Increase in Subscriptions

I.E.S. members have recently been notified by the Council of the proposed increase in existing subscriptions, which, if approved, will come into effect in the New Year. The Society has been fortunate for many years in having an administration run on somewhat unusual but very economical lines. It has, however, now outgrown the present system. Its programme includes the appointment of a full-time paid secretary, an increase in the present small staff (no bigger than 20 years ago), and larger premises. This has been pointed out in a letter addressed personally by the president to all members of the Society, who will doubtless agree that a good case has been set out for the moderate increase in subscription now proposed—for 80 per cent. of members it is only 8s. a year. (It is interesting to recall that the American I.E.S., which has about twice the existing membership of our Society, has an income *four times* as great, and pays in salaries more than the total income of our I.E.S.) The council is to be congratulated on one enterprising simplification, namely, the adoption of round figures in pounds and the abandonment of guineas and the inconvenient odd shillings, which add to the burden of accountancy.

I.E.S. Meetings

NOVEMBER, 1944

SESSIONAL MEETING IN LONDON 1944.

November 14th. MR. J. N. ALDINGTON ON **Sources of High Brightness.** (At the E.L.M.A. Lighting Service Bureau, 2, Savoy Hill, London, W.C.) 5.30 p.m.

MEETINGS OF CENTRES AND GROUPS

1944.

November 1st. MR. R. W. GREGORY and MR. J. C. GILLIE ON **Visual Needs in Youth.** (At the Minor Hall, Oxford Street, Newcastle-on-Tyne.) 5.30 p.m.

November 2nd. Discussion on **Domestic Lighting.** (At the Cardiff Corporation Demonstration Theatre, The Hayes, Cardiff.) 3.30. p.m.

November 3rd. MR. E. J. PERNET ON **Illuminated Display Advertising.** (In the Pump Rooms, Bath.) 7 p.m.

November 3rd. Debate: "That the Lighting of Class A Roads by Stationary Lights is Necessary." (At the Imperial Hotel, Temple Street, Birmingham.) 6 p.m.

November 3rd. MR. G. H. GILES ON **Lighting; the Ophthalmic Point of View.** (In the Lecture Theatre of the City of Nottingham Gas Department, Parliament Street, Nottingham.) 5.30 p.m.

November 6th. MR. F. F. MIDDLETON ON **Lighting, Pros and Cons.** (In the Leeds Corporation Electricity Showrooms, The Headrow, Leeds.) 6 p.m.

November 7th. MR. R. GILLIESPIE WILLIAMS ON **Modelling with Light.** (In the Lecture Theatre, Central Library, Sheffield.) 6 p.m.

November 7th. MR. A. L. RANDALL ON **Domestic and Commercial Lighting in the Post-War Era.** (In the Derby Electricity Showrooms, Irongate, Derby.) 6 p.m.

November 7th. MR. T. S. JONES ON **School Lighting.** (In the Electricity Showrooms, Market Street, Huddersfield.) 7 p.m.

November 7th. MRS. DOROTHY K. SOUPER, ON **Human Optics.** (In the Leicester Corporation Electricity Department Demonstration Theatre, Charles Street, Leicester.) 6 p.m.

November 10th. Address by THE PRESIDENT (MR. E. STROUD). (At The Georgic, Union Street, Glasgow.) 6 p.m.

November 10th. DR. H. TOMLIN ON **What the Eye Thinks.** (In the Bradford Electricity Department Showrooms, Sunbridge Road, Bradford.) 6.45 p.m.

November 11th. MR. J. M. WALDRAM ON **Street Lighting.** (In the Reynolds Hall, College of Technology, Sackville Street, Manchester.) 2.30 p.m.

November 15th. MR. E. W. MURRAY ON **Industrial Lighting in Relation to Safety and Vision.** (At the Cleveland Scientific and Technical Institute.) 6 p.m.

American I.E.S. 37th Annual Meeting and Technical Conference

The particulars of the above conference, which reached us only recently show that the American I.E.S. is well maintaining its technical discussions in war-time. There was a varied programme of reports and papers, and the illustrated brochure describing the Edgewater Beach Hotel, Chicago, which serves as headquarters, with its beaches and gardens, may well excite some envy in British readers. An interesting feature is the "Local Activities Forum," affording opportunities for the discussion on new developments—which puts one in mind of ideas being studied in this country. This, we notice, contains one significant item for discussion—"What effect will new dues have on the Membership?"

SITUATIONS VACANT

SALES REPRESENTATIVE required for Illuminating Engineering Department of Lamp Manufacturers. Experience in planning industrial lighting essential. Write with details of age, experience, and salary required to Box C.G.9, c/o 5, New Bridge-street, London, E.C.4.

OFFICE JUNIOR REQUIRED in office of the Illuminating Engineering Society. Experience unnecessary. Would be taught typing and general office routine. Good handwriting essential. Apply, stating age, and salary required, to "Light and Lighting," 32, Victoria-street, London, S.W.1.

(Secretaries of Centres and Groups are requested to send in particulars of any changes in programmes, mentioning subject, author, place, date and time of meeting; summaries of proceedings at meetings (which should not exceed about 250-500 words) and any other local news are also welcome.)

I.E.S. Centre Notes

By all accounts the Civic Meeting arranged by the **Birmingham Centre** on September 29 (reported in the current issue of the I.E.S. "Transactions"), was a most successful event—18 mayors being included in the audience of 250, which was welcomed by the Lord Mayor of Birmingham. It was a feather in the cap of the Centre to have secured the attendance both of the present I.E.S. President (Mr. Stroud) and of his predecessor (Dr. H. Buckley), who briefly opened the proceedings. Mr. R. O. Ackerley, who gave an account of recent work in planning Codes of Practice, etc., and Mr. N. V. Everton also attended from London. A stimulating address was given by the new Chairman of the Birmingham Centre, Mr. J. G. Holmes. The meeting well served its object of impressing the authorities the importance of good lighting in reconstruction plans. It is hoped that one ultimate result may be the presence of one representative with knowledge of lighting matters in all committees concerned with post-war building and development.

At the opening meeting of the Centre on October 6 the customary pleasing ceremony of presenting a Gavel and Mallet, used during the past session, to the retiring chairman was followed. [Will the I.E.S. Council and other Centres take note?] An introductory address on "The Light of the Sun" was given by the new Chairman, Mr. Holmes, who, we understand, is booked to give a similar address to the Birmingham and Five Counties Architects Association in the near future. It has now been announced that the subject of the annual Essay Competition, competed for by pupils

of Technical and Secondary Schools in the Midland Area, is to be "Street Lighting in relation to Public Safety."

The **Nottingham Centre**, on October 6, received a visit from Dr. J. W. T. Walsh, who lectured on "Lighting—The Scientist's Point of View," and discussed the measurement of light output, illumination, and colour—measurement being the outstanding item in lighting from the purely scientific standpoint. There was an audience of about 50 and the chairman, Mr. E. G. Phillips, presided.

We hear that the **Bradford Group** has held two interesting meetings, the first addressed by Mr. L. G. Applebee, special reference. Mr. Stevens's paper former selected as his subject: "The Civic Theatre, its Planning and Lighting"—a very appropriate subject since Bradford has one of the best examples of civic theatres in the country. To this Mr. Applebee made special reference. Mr. Steven's paper on "Applications of Fluorescent Lamps," which was illustrated by numerous demonstrations, drew an audience of over 100, many of whom had questions to put. The Bradford Group is repeating the Christmas lectures to children, which proved so successful last year. On this occasion it is planned to use the well-equipped Civic Theatre, housing nearly 300, for the purpose.

The **Huddersfield Group** recently enjoyed a lecture by Dr. R. H. Peters on "Colour in relation to Lighting," well illustrated by demonstrations of the effect of sodium, mercury and other forms of lamps. At a subsequent meeting a lecture was given by Mr. P. Hartill who took as his subject "Illumination and Illusion" (perhaps a species of counterblast to Mr. Ackerley's "Seeing is Believing"?)

I.E.S.: Present, Past and Future

In what follows we give a summary of the Presidential Address delivered by Mr. E. Stroud at the Opening Sessional Meeting of the Illuminating Engineering Society, held in London, on Tuesday, October 10th, 1944.

The lecture theatre of the Lighting Service Bureau was filled to capacity on October 10 when Mr. E. Stroud delivered his Presidential Address. In the audience were many members of long standing, including ten past presidents.

After a brief reference to present trials and difficulties—such as the passage of flying bombs—the President, looking beyond the period of the war, expressed good hopes for the future, when scientific advances should be linked to a good neighbour policy between nations. Recent inventions should serve to remove very largely handicaps of distance and should make closer co-operation possible.

Mr. Stroud took for the main subject of his address "the Illuminating Engineering Society and its future." He recalled that the Society was formed by Mr. Leon Gaster in 1909. He enlivened his account of subsequent progress by the display of photographs of a number of its Presidents whose names were linked with important stages of development—a pleasing personal touch.

When the Society commenced operations under its first President, Professor Silvanus P. Thompson, illuminating engineering was still in the embryo stage. Originally there was little information in regard to lighting practice. The instruments available for the measurement of illumination were few and cumbersome. Much original work was done by Mr. A. P. Trotter and other early pioneers, and committees were formed to deal with the lighting of schools and libraries and other subjects. The setting up of the Home Office Committee on Factory Lighting in 1913 was an important landmark.

During the first Great War members of the Society did useful work on the measurement of the candle-power of flares and the brightness of radium compounds for coating gunsights, etc., and



Photo by Vandyke

Mr. Ernest Stroud
I.E.S. President, 1944-45.

Mr. E. Stroud is an I.E.S. member of old standing, who acted as Honorary Treasurer from 1936-38. He has served on the Council and on many technical committees—both those of the I.E.S. and the British Standards Institution. He has been Chief Engineer of Holophane, Ltd. for many years and, for the last five years, general sales manager.

the year 1915 saw the issue of the first of the series of reports on factory lighting issued by the Departmental Committee. Other reports followed in 1921 and 1922. A B.S.I. Committee was formed to prepare a standard specification on Street Lighting—which eventually formed the subject of reports by the special committee set up by the Ministry of Transport.

The period 1927-1930 was a momentous one in the history of the Society. It was during the reign as President of Sir Duncan Wilson (1927-28) that the death of its founder, Mr. Leon Gaster, occurred. In this and subsequent years much constructive work in connection with the constitution of the Society was done. Dr. C. C. Paterson became President in 1928, and he was followed by Dr. J. W. T. Walsh in 1929 and by Lieut.-

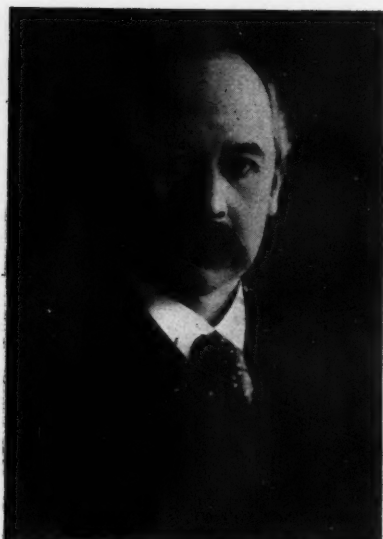


Photo by Elliott & Fry, Ltd.

Professor Silvanus P. Thompson
First I.E.S. President, 1909-1913.

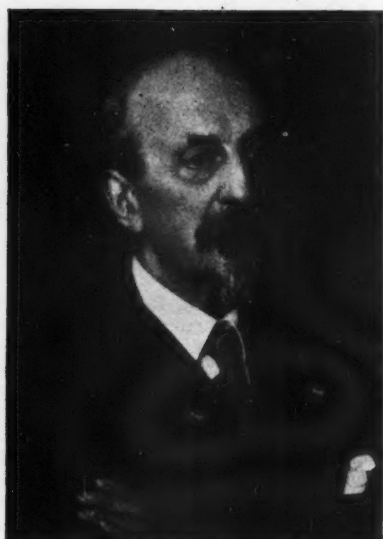


Photo by H. J. Whitlock & Sons, Ltd.

Mr. A. P. Trotter
President, 1917-1920.



Photo by Lafayette, Ltd.

Sir Duncan Wilson
President, 1927.

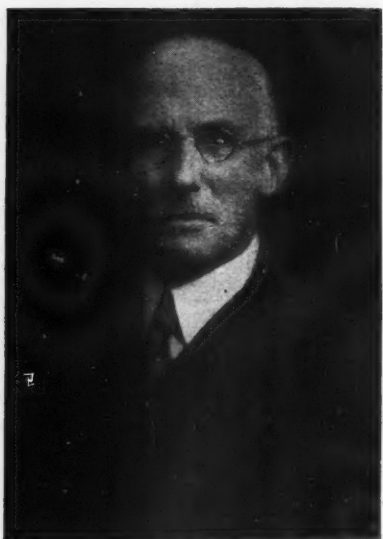


Photo by J. Russell & Sons

Dr. C. C. Paterson
President, 1928.

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Col. Kenelm Edgcumbe (now the Earl of Mount Edgcumbe) in 1930—the year in which the Society realised its ambition of becoming an incorporated body. To the wisdom and guidance of these four eminent Presidents the Society owes much. During the first twenty years the foundations of the Society were laid. The floodlighting of London buildings, which accompanied the holding of the International Illumination Congress in London in 1931, did much to call attention to its efforts. Efforts were made to create interest in the Provinces, where the first centre, in Manchester, was formed in 1932.

In his Presidential Address in 1934 Mr. H. Hepworth Thompson put forward a number of valuable suggestions for the improvement of the position of the Society, stressing particularly the need for increased membership and greater financial resources. From that date onwards there ensued a period of development during which the Society made rapid progress. The membership, at this time about 450, advanced to 850 at the commencement of the present war, and has now attained over 1,600—nearly a fourfold increase during these ten years. Several ambitions of the Society have since been realised, such as the formation of the nucleus of a library, the issue of "Transactions" and the establishment of a class of Fellowship—a coveted honour at present granted to 127 members.

This present growth of membership has been mainly due to the development of Centres, now ten in number, with which, and with five supplementary groups, there are associated over 1,000 members.

The growing recognition of the importance of good lighting is illustrated by the official recognition given to the I.E.S. Code of values of illumination. The inclusion of lighting in the Factory Act of 1937 makes good an omission stressed by Professor Silvanus Thompson in his inaugural address 35 years ago. During the present war the Society has devoted much attention to A.R.P. lighting problems, on which at one time about 24 committees, enlisting the services of over 100 members, were working. Perhaps the most valuable of these services was the organisation of wartime street lighting ("synthetic starlight"). Members of the Society are serving on the D.S.I.R. (Ministry of Works) Committee on the Lighting of Postwar Buildings and on the Codes of Practice Committee. A series of Lighting Reconstruction pamphlets has also been issued. There are various important plans in preparation, such as those relating to the education



Mr. Leon Gaster

Founder of the Society, Hon. Secretary,
1909-1928.

of lighting engineers and the provision of a "hallmark" recording their qualifications. The realisation of all these plans will involve the provision of a full-time paid secretary, an extension of the staff, and, ultimately, larger premises.

In years to come there should be great opportunities for lighting. Closer links should be established with the sister societies in the United States and the Dominions, and international contact should be revived.

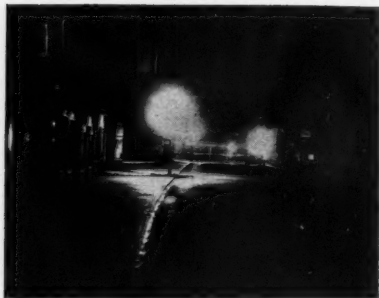
In his concluding remarks the President emphasised the need for extension of the present administration in order to cope with growing activities and prospective new developments. There was now a need for larger staff, better office facilities, and a permanent secretary who would ultimately take full charge of the administration. He expressed appreciation of the services undertaken in an honorary capacity during the past 35 years by Mr. J. S. Dow, who, when the time came to lay aside the burden of office, would take with him the grateful appreciation and thanks of members.

"Public Lighting in the City and Highway"

Another of the Lighting Reconstruction pamphlets being issued by the I.E.S. has made its appearance under the above title. The pamphlet sets out, in simple terms, "what a street lighting installation should do," and various features, such as absence of "spottiness" on the roadway and the marking out of bends, etc., are illustrated by simple sketches. Illustrations of a blitzed street at the commencement and a reconstructed, well-lighted thoroughfare at the end also serve to point the moral. This is a particularly readable and useful production, which reflects credit on the I.E.S. and on the Association of Public Lighting Engineers, whose representatives have shared the task of production.

Copies are available at the same rates as for others of the series of Lighting Reconstruction pamphlets. Single copies 1s. each, 9s. per dozen, £3 per 100.

Modified Street Lighting at Cambridge



Permission to use the modified street lighting in Cambridge was given on September 25, and the next evening the Cambridge University and Town Gas Light Company was able to put on the modified light in a large number of the 3,145 gas lamps. All the main streets and a number of the side streets were lighted. The new lights were greeted with enthusiasm and many people came out to watch the lamps coming on automatically at dim-out time. The illustration shows the lighting in one of the main streets.

Lighting a Foot Clinic



The above picture shows the Chelsea Foot Clinic, where an average of 100 people receive treatment daily. Originally the lighting consisted of local (tungsten filament) units, but a number of Metrovick translucent troughs with 5 ft. fluorescent tubes have recently been installed by the authorities—with good results, as the illustration shows.

Mill Lighting and Colour

We are indebted to Mr. J. W. Howell for an interesting brochure describing the Mill Lighting and Colour Exhibition, sponsored by the Cotton Board and held in Manchester. It was recently estimated that over 7,500 people had visited the exhibition, which has been supplemented by lectures on textile lighting, etc. Two systems of lighting, yielding respectively 12 and 25 ft.c., were installed. Both tungsten filament units and 80 w. fluorescent tubes are represented. Of special interest is the linking of colour and decoration with the lighting. It is shown how the colouring of walls and machines can be arranged to give an agreeable effect and how colour can be usefully applied to safety symbols. In the list of acknowledgments at the end it is stated that the Electric Lamp Manufacturers' Association of Great Britain, Ltd., have been responsible for the lighting. The aid of Imperial Chemical Industries in directing the painting, and of many other firms who have loaned and erected machinery, is also acknowledged.

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For use with BS/ARP 37 lantern

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CONVERSION UNIT	C77336	C77337	C77338

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FITTING	C74569-10	C74569-15	C74569-20
ADAPTOR	BC to BC, ES to BC, GES to BC as required		
LAMP	Mazda 100 w.	Mazda 100 w.	Mazda 100 w.

Where no holder is available

MOUNTING HEIGHT	10-15 feet	15-20 feet	Over 20 feet
FITTING	74570-10	74570-15	74570-20
LAMP	Mazda 100 w.	Mazda 100 w.	Mazda 100 w.

STANDARD OF ILLUMINATION — 0.2 Foot Candles

Where holder is available

MOUNTING HEIGHT	10-15 feet	15-20 feet	Over 20 feet
FITTING	C70636	C70636	C70636
ADAPTOR	BC to BC, ES to BC, GES to BC as required.		
LAMP	Mazda 15 w.	Mazda 25 w.	Mazda 40 w.

Where no holder is available

MOUNTING HEIGHT	10-15 feet	15-20 feet	Over 20 feet
FITTING	C70636 with lamp-holder and weatherproof cap	C70636 with lamp-holder and weatherproof cap	C70636 with lamp-holder and weatherproof cap
LAMP	Mazda 15 w.	Mazda 25 w.	Mazda 40 w.

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Illumination—Is It Engineering?

The recent address on the above subject by Mr. E. G. Phillips, chairman of the I.E.S., Nottingham Centre, of which we made mention last month (September, p. 135), was of a stimulating nature and, as is illustrated by the adjacent picture, the meeting received distinguished local support.

The Average Home

The address was interesting for the effort to link up natural and artificial lighting. Existing practice in both these directions came in for some criticism. Taking the average pre-war £50-a-year house, Mr. Phillips remarked that there was little evidence that the shape and size of windows were decided "from the outside"—and, once determined, were unalterable, except for the worse, for the next 50 years. Inside the prevailing tendency was to install one lighting point in the centre of the ceiling—except, perhaps, in the "best bedroom," where it was installed near the main or only window. Location in the centre ensured a shadow just where light was needed on ovens, sinks, and cupboards, etc., only the central table receiving adequate illumination.

In the industrial world more attention has been given to daylight, as illustrated by the saw-tooth roof design, but its advantages are often nullified by the nature of the site. Churches are instances where architectural features predominate almost without regard to the utility of the completed building.

Window Design

Windows, the author contended, should be regarded really not as elements in external design but as internal fittings, intended (a) to enable the external scene to be seen in comfort from any position in a room, and (b) to illuminate the interior adequately with day-



Courtesy: The Nottingham Journal

A view of the high table at the luncheon preceding the fifth annual meeting of the I.E.S. Nottingham Centre. Amongst those present were the Lord Mayor (Councillor F. Mitchell) and the Lady Mayoress (Mrs. F. Mitchell), the Chairman of the Centre (Mr. A. Hacking), and Mrs. Hacking, and Mr. E. G. Phillips (who delivered the address), and Mrs. E. G. Phillips.

light. The first condition implies low window sills, not exceeding 2 ft. 9 in., the second, high windows—lighting falling on the horizontal surfaces at an angle of less than 25 per cent. is of lesser value. The present tendency, however, is to reduce ceiling heights—from considerations of £.s.d.

After referring to recent recommendations in regard to minimum daylight factors, the importance of planning groups of buildings, and the drawbacks of projections such as sun balconies, etc., Mr. Phillips went on to point out some drawbacks of daylight, such as its variable and capricious nature, and reminded those present that some new industrial buildings had been designed without windows for the admission of daylight; an open mind should be maintained on these problems.

Artificial Illuminants

After reminding gas engineers that the industry had rather jeopardised its chances in the lighting field by devoting major attention and research to the heating and cooking side, Mr. Phillips remarked that advances in electric sources of light had been mainly in the

direction of efficiency, rather than achieving ideal lighting conditions. The fluorescent lamp with its low brightness was, however, a step in the right direction, though, as yet, little was known of its adaptability to domestic conditions. Fittings were still regarded as mainly decorative, and little real progress of a scientific character had been made.

Wards and Operating Theatres

Mr. Phillips then passed on to the discussion of a few special lighting problems, such as those met with in hospitals. In operating theatres the author suggested the total exclusion of daylight and the use of artificial sources outside the actual theatre, the light passing through a heat filter prior to being focused where needed. The entry of filtered air should be scientifically controlled and students should witness operations through special windows in the domed roof. In the wards the present spherical drop lights down the centre of the room—the worst possible position for a patient in bed—should be replaced by large areas of low intensity with the actual sources completely hidden. Other suggestions related to the use of low level fittings to illuminate the floors of wards, "ultra-violet screens" to reduce the risk of contagion, and the use of fluorescent effects in special wards, e.g., those for children.

Domestic Lighting

In the field of domestic lighting, Mr. Phillips suggested, fully indirect lighting would oust all ornamental fittings. Ultimately illumination would be controlled, not by switching out a certain number of the lamps but by automatic variation of the lumen output of the illuminant, the colour of which would be controllable within wide limits, according to the desires of the occupant. With fully indirect lighting furniture could be arranged in any room without regard to the sources of light. The interiors of ovens would be illuminated—it should be possible to inspect the things being cooked without opening the door. Accidents on stairways would be reduced by

the adoption of some fluorescent medium on the stair treads and banisters, operated by pressure on the top and bottom step.

Public Lighting

After five years of almost total blackout the pendulum would swing from "starlight" and "moonlight" to the general illumination of trunk roads in their entirety. In 1938 there were 27,500 miles of Class 1 roadways, of which 4,500 had been taken over by the Ministry of Transport in 1937. The lighting of these should receive early attention. Dual carriage-ways will become standard practice, and adequate lighting should render the use of dazzling headlights unnecessary.

In conclusion, Mr. Phillips urged that now is the time "to lift the question of lighting from the casual to the definite." Illumination throughout the 24 hours should be the responsibility of an expert specialising in both natural and artificial lighting.

LIGHTING UNDER POST-WAR CONDITIONS

will be even better and brighter and more comfortable than in the years before the war. Vitreosil, pure fused silica, gave to pre-war developments its remarkably heat resistant and light diffusing gas globes and the highly transparent envelopes of the super-pressure mercury lamps.

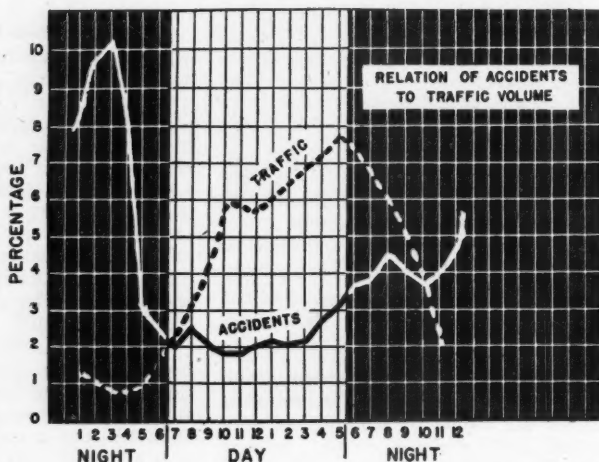
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The Relation of Traffic Accidents to Traffic Volume

The striking illustration here shown appeared in a paper on Traffic Safety Engineering, by Mr. Henry W. Osborne ("Illuminating Engineering," June, 1944, p. 379), in which experience in Buffalo is recorded. It will be noted that whereas in daylight the rise and fall in the number of accidents is roughly in accord with changes in traffic, an abrupt change in the curve appears as soon as darkness sets in, the number of accidents rising steeply, notwithstanding the fact that traffic has become very much less.



It would be instructive to obtain similar data for cities in this country.

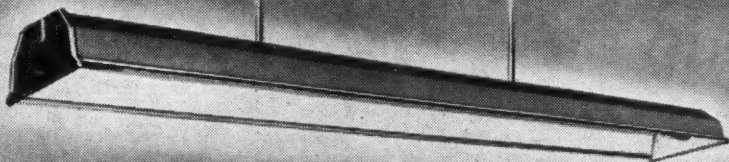
Fluorescent Lighting in a Large Engineering Assembly Room

The picture shows a recent B.T.H. engineering assembly room. The units lighting installation, utilising Mazda 80-W. 5-ft. fluorescent lamps in a large and furnish 25 ft.c.



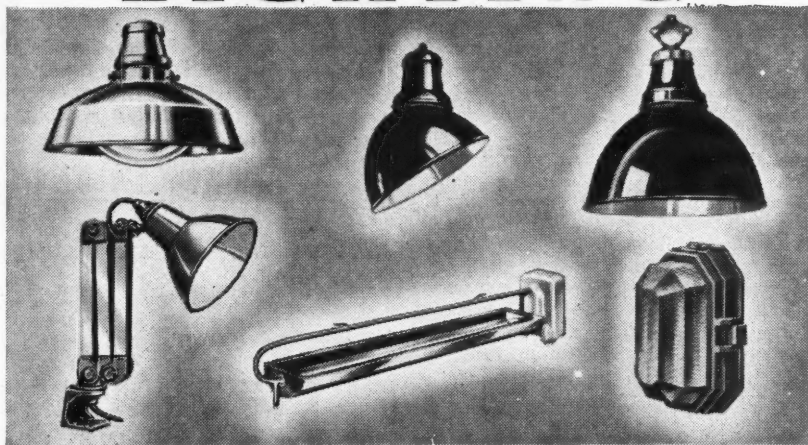
Each unit is elastic, being designed for one, two, or three lamps, as desired, though at present two lamps in each unit are installed. In this way an illumination varying from 12 to 38 ft.c. can be secured. Slots in the reflectors allow sufficient light upwards to avoid any "tunnel effect." The installation was carried out by Electric Power Installation, Ltd.

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VITREOUS OR STOVE ENAMELLED FINISH

LIGHTING



EQUIPMENT

FOR EFFICIENCY, ECONOMY & SERVICE

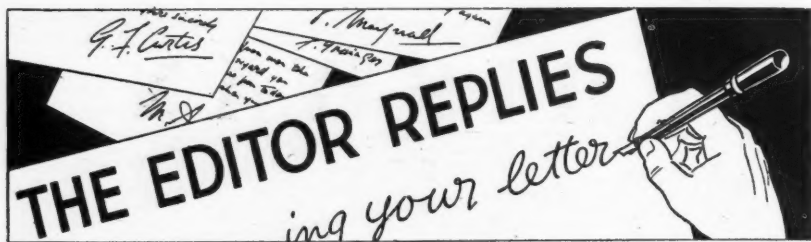
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INDUSTRIA REFLECTORS
WORKSHOP BRACKETS

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L.E. 1162
L.E. 1226/1.

**ROYAL "EDISWAN" LAMPS
AND FLUORESCENT LIGHTING TUBES**

THE EDISON SWAN ELECTRIC CO. LTD. 155 CHARING CROSS RD., LONDON, W.C.2 (L.E.53)



Several correspondents have expressed their interest in the joint meeting with the Science Masters Association, reported in the last issues of the I.E.S. "Transactions." Mr. W. M. Hime, however, is a little apprehensive lest the photometric experiments, for which fluorescent tubes were used, should instill the idea that the **inverse square law** can be applied to such installations.

The experiment was designed to correct this impression, and I hardly think that science masters should draw mistaken conclusions. I do agree, however, that one should be cautious in dealing with the public generally. It is quite true, as Mr. Hime reports, that consumers are apt to become concerned about raising the level of a series of tubular lamps a foot or so, whereas in fact the effect on the resultant illumination is probably negligible.

Mr. J. B. Carne, who has been studying the same issue of the "Transactions," comments on the note by Dr. Angus and Mr. Luxton on **Portable Reading Lamps**. Such units have a definite field for consumers of small means, who will rarely instal adequate general lighting. With a well-designed table-lamp one can get the requisite illumination at a specified spot with relative economy. It is unfortunate, however, that so many lamps offered in showrooms do not emanate from enlightened makers and are poorly designed. The lighting industry might well give some heed to this form of unit.

I have been asked for information on **photo-electric photometers** and their


application to post-war **street lighting**. I believe that after the war improved instruments, with a range enabling relatively low illuminations to be measured, may be available. They should have many applications, even for street lighting if their limitations are understood. One evident drawback, however, is that the shiny surface of the cell and its protecting layer make it difficult to measure correctly illumination derived from rays of light coming at oblique angles, such as are found midway between two street lamps.

"Moonlight" Street Lighting



We illustrate above one of the special fittings being listed by Revo Electric, Ltd., to furnish the modified ("moonlight") street lighting now permitted by the authorities. This fitting, taking a 15-W lamp, is for use in new positions, but there are also fittings enabling easy conversion of existing "starlights" to be made. Provision is made for two illuminations, 0.02 and 0.2 foot-candles.



Why did the Victorians, when they wanted a semi-obscure glass, produce a bad imitation of a hoar-frost? Glass is a beautiful substance: it looks best in simple and elegant pattern. At any rate, that's what we think today — and that's why "a Chance product" like "Reeded" glass is designed in vertical lines, looking like this in section. 

Let's leave the Victorian puzzle embedded in its frame . . . Chance Brothers will continue to produce patterned glasses for people who want well-designed things in their post-war homes — and plenty of light to see them by.

CHANCE GLASS FOR SCIENCE, INDUSTRY AND THE HOME

CHANCE BROTHERS LIMITED, Glass-Makers since 1824, Produce Rolled Plate, Wired Glass, Pressed Glassware, Laboratory Glassware, Architectural, Decorative and Lighting Glassware, Optical Glass, Scientific and other specialised Glass Products, Marine and Aviation Lighting Equipment. Head Office: SMETHWICK, BIRMINGHAM.

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Lighting of a Colour-Printing Room

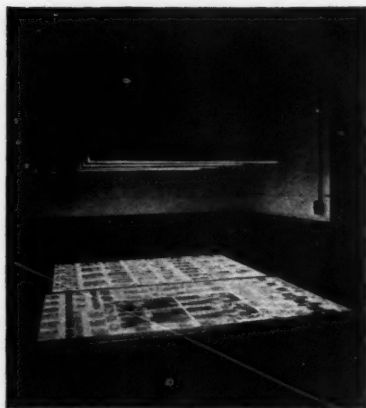
A Study in Backgrounds

We are indebted to Mr. George Ainsworth, one of our I.E.S. members in New York City, for the accompanying pictures, which formed part of data recently distributed to the Lighting Service Forum of the Illuminating Engineering Society (U.S.A.).

The problem consisted in lighting a

made the detection of off-register and accurate colour matching difficult.

To eliminate this defect highly diffused lighting was found necessary. The lamps as now mounted allow ample light to fall on the surroundings, which were redecorated. The ceiling and side walls down to 8 ft. were painted white (89 per cent. ref. factor). From this point to the card rail, light grey colour (ref. factor 42 per cent.) is used, and the remaining part of the walls is painted dark blue (ref. factor 19 per cent.). Sixteen 48-in. 40-W. semi-indirect fluorescent lamps are now used. The illumination on the work is 56-60 ft.c., and the



The original method of lighting, showing excessive contrast between working area and surroundings.

room (10 ft. wide by 20 ft. long) with a 13-ft. ceiling) for the accurate examination of multi-colour printing. Originally, the system seen on the left, lighting from four single 40-W. fluorescent lamp units, 3 ft. above the table, was in use. Although this furnished 60 ft.c., visual effects were unsatisfactory. Sheen produced on the semi-glossy printed sheets gave trouble, and "veiling glare"



Improved lighting conditions: the lights are raised and more light is shed on the background, which is redecorated in graded tints.

vertical illumination on walls 5 ft. above floor 36.5 ft.c.

Apart from the primary object of avoiding troublesome reflected glare, the new system gives manifestly better background conditions. The case is interesting in showing that fluorescent lighting installations are not necessarily perfect, and that, even with these sources, good and bad lighting conditions may be found.

